waters at that point on the Apennines, where are deposited the *Buccinæ*, the *Turbines*, and *Murices*, of which analogous genera are so abundant at Bramerton: or have ascended the scale, and carried its limits yet higher,—where, at the height of twelve hundred toises, upon the Andes, M. Humboldt discovered the fossil teeth of the mastodon, whose remains are also found with the crag shells in our humble val-

ley of Norwich.

It was the common error of the English geologists of the last century, to deduce consequences from too limited premises. Thus our Whitehurst, Woodward, Whiston, Hutton, and other intelligent observers, had each his favourite theory: each saw in the phænomena around him sufficient confirmation of a preconceived hypothesis; each reasoned and speculated from the confined data which came under his own particular observation: and, as it happens in all those cases where research is limited to the evidence of peculiar systems, the facts were not always recorded so impartially as the strictness of geological inquiry demands. Thus, for a time, schools were instituted, the disciples of which saw only through the eyes of their respective masters, and rejected truths which harmonized not with their views. It is obvious that such a process tended rather to confuse, than to simplify and facilitate the progress of this science.

This disposition to theorize has happily decreased, as the number of observers has augmented; while all unite to collect the data, to arrange the documents, and to combine those proofs, whence hereafter will arise some incontrovertible and universally acknowledged principle, by which to account for

phænomena at present so inexplicable.

LXXXV. A Synopsis of the Birds discovered in Mexico by W. Bullock, F.L.S. and H.S., and Mr. William Bullock, jun. By WILLIAM SWAINSON, Esq. F.R.S. F.L.S. &c.

[Concluded from p. 369.]

FAM. SYLVIADÆ.

G. TRICHAS. Swains. in Zool. Journ. No. 10. Trichas personatus. Sylvia trichas, Wilson i. pl. 6. f. 1.

Trichas personatus. Sylvia trichas, Wilson i. pl. 6.f. 1
 Near Vera Cruz.

G. Sylvicola. Swains. in Zool. Journ. No. 10. 38. Sylvicola pusilla. Wilson iv. pl. 28. f. 1.

New Series. Vol. 1. No. 6. June 1827. 3 K 39. Sylvicola

- 434 Mr. Swainson's Synopsis of the Birds of Mexico.
- 39. Sylvicola Blackburnia. Wilson iii. pl. 23. f. 3.
- 40. ____ citrinella. Wilson ii. pl. 15. f. 5.
- 41. ____ flavicollis. Wilson ii. pl. 13. f. 6.
- 42. inornata.

Above olive green, beneath white; sides of the head, ears, and throat cinereous; wings with two pale yellow bands.

This, and all the foregoing species, were collected near Vera Cruz, and seem to be young birds.

- G. VERMIVORA. Wilson. Swains. in Zool. Journ. No. 10.
- 43. Vermivora solitaria. Wilson ii. pl. 15. f. 4. Inhabits with the last.
- 44. Vireo olivacea. Sw. Wilson ii. pl. 12. f. 2.

FAM. FRINGILLIDÆ.

45. Alauda cornuta. Wilson i. pl. 5. f. 4.

To continue the specific name of *Alpestris* to a bird which, as Wilson affirms, is only seen upon sandy plains, is a manifest absurdity. I have, therefore, adopted the alteration which that accurate observer himself has suggested.

44. Pipilo macronyx.

Olive, head and throat black, body white, sides and vent ferruginous; wings and lateral tail feathers (in one sex) with yellow spots.

Table land. Real del Monte. Temiscaltipec.

Total length, 9 inches: wings, $3\frac{1}{2}$; tail, $4\frac{3}{4}$; tarsi, $1\frac{1}{10}$; hind toe and claw, $\frac{3}{10}$.

45. Pipilo maculata.

Olivaceous brown; head and throat black; body white; sides and vent rufous; back, wings, and lateral tail feathers with white spots.

Table land. Real del Monte.

Total length, $8\frac{1}{2}$: wings, $3\frac{1}{2}$; tail, 4; tarsi, $1\frac{1}{17}$; hind toe and claw, $\frac{3}{4}$.

46. Pipilo fusca.

Gray, beneath paler; throat obscure fulvous with brown spots; vent ferruginous.

Table land. Temiscaltipec.

Total length, 8: bill, $\frac{7}{10}$; wings, $3\frac{1}{2}$; tail, 4; tarsi, $\frac{6}{10}$; hind toe and claw, $\frac{7}{10}$.

The two preceding species are typical; the next is aberrant.

47. Pipilo rufescens.

Rufous brown, beneath whitish; crown rufous; cars grayish; chin with a lateral black stripe.

Table land. Temiscaltipec.

Total length, 7: bill, $\frac{6}{10}$; wings, 3; tail, $3\frac{2}{10}$; tarsi, $\frac{3}{4}$.

G. AM-

G. Ammodramus. Swains. in Zool. Journ. No. 10.

48. Ammodramus bimaculatus.

Above gray, varied with chesnut lines and black spots; beneath ochraceous white, unspotted; breast with a lateral black spot.

Table land. Temiscaltipec.

Total length, $4\frac{1}{2}$: bill, $\frac{1}{2}$; wings, $2\frac{3}{10}$; tail, $1\frac{1}{2}$; tarsi, $\frac{3}{4}$; hind claw and toe, 13.

G. CHONDESTES. Swains, in Zool. Journ. No. 10.

49. Chondestes strigatus*.

Fulvous brown, beneath whitish; ears and double stripe on the head chesnut; chin with a lateral black stripe; lateral tail feathers black, tipt with white.

Table land. Temiscaltipec.

Total length, $6\frac{1}{9}$: bill, $\frac{1}{9}$; wings, $3\frac{1}{9}$; tail, $3\frac{1}{4}$; tarsi, $\frac{3}{4}$.

50. Fringilla socialis. Wilson ii. pl. 15. f. 5. Table land. Temiscaltipec. Real del Monte.

51. Fringilla cinerca.

Cinereous, beneath whitish; back and wing covers rufous; tail divaricated, the outer feather white.

Table land. Temiscaltipec.

Total length, $6\frac{1}{4}$: bill, $\frac{1}{6}$; wings, $2\frac{3}{4}$; tail, 3; tarsi, $\frac{8}{10}$.

52. Pyrrhula frontalis. Bonaparte, Am. Orn. i. pl. 6. f. 1. 2. Table land. Temiscaltipec. Real del Monte.

Total length, $5\frac{1}{2}$: bill, $\frac{4}{10}$; wings, $3\frac{2}{10}$; tail, $2\frac{1}{2}$; tarsi, $\frac{7}{10}$.

I adopt the name by which that enlightened ornithologist Prince Charles Bonaparte has distinguished this species; although I am at present unprepared to offer any opinion as to its true affinities.

53. Carduelis Mexicanus.

Glossy black, beneath yellow; base of the quills and lateral tail feathers white.

Table land. Temiscaltipec. Real del Monte.

Total length, $4\frac{1}{4}$: bill $\frac{3}{10}$; wings, $2\frac{1}{2}$; tail, 2; tarsi, $\frac{1}{2}$.

FAM. STURNIDÆ.

54. G. Dolichonyx. Swains. in Zool. Journ. No. 10.

Dolichonyx orzivorus. Sw. Wilson ii. pl. 12. f. 1, 2. Table land.

^{*} Since the above was written, I have been gratified by a sight of the valuable addition made to "American Ornithology" by Prince Charles Bonaparte. I have it not in my power, at this moment, to institute a comparison between the bird above described, and the Fringilla grammaca of this writer. They appear, however, to belong to the same group; but as the characters of the genus Spiza are not there detailed, I know not whether it accords with my definition of Chondestes.

- Mr. Swainson's Synopsis of the Birds of Mexico. 436
- 55. Agelaus pecoris. Sw. Wilson ii. pl. 18. Table land, near Mexico.
- 56. Agelaus Phæniceus. Vieil., Wilson iv. pl. 30. f. 1, 2. Sides of the Cordilleras. Real del Monte.

57. Agelaus longipes.

Blackish brown; front, temples, and throat fulvous yellow;

Table land: rare.

Male. Total length, $8\frac{1}{9}$: bill, $\frac{9}{10}$; wings, $5\frac{1}{9}$; tarsi, $1\frac{9}{10}$; mid-

dle toe and claw, $I_{\frac{1}{10}}$.

- Taking L. Suchii as the type of the genus Leïstes, it appears to me that the three foregoing birds, with several others in my possession, are sufficiently distinct, as a group, to remain under their former designation. So far as my information goes, Leistes is a genus peculiar to South America, and is immediately connected to Xanthornus. Agelaus, on the contrary, is more closely allied to Sturnella.
- 58. Sturnella magna. Wilson iii. pl. 19. f. 2. Table land: very common at Real del Monte.
- 59. Xanthornus Baltimore. Wilson i. pl. 1. f. 3. Table land. Real del Monte.
- 60. Xanthornus Bullockii.

Black; rump and under parts golden yellow; lesser wing covers white; throat with a black stripe; ears and eye-stripe golden.

Table land: rare.

This, the most beautiful of the group yet discovered in Mexico, will record the name of those ornithologists who have thrown so much light on the birds of that country.

- G. Cassiculus. Swains. in Zool. Journ. No. 10.
- 61. Cassiculus coronatus.

Black; wing covers, rump, vent, and lateral tail feathers yellow; crest elongated, pendulous; bill white.

Table land. Temiscaltipec.

Total length, 12 inches: bill, $1_{\frac{6}{10}}$; wings, 6; tail, $5_{\frac{1}{2}}$; tarsi, $1_{\frac{1}{2}}$.

- 62. Icterus Dominicensis. Pl. Enl. pl. 5. f. 1. Table land. Temiscaltipec, not uncommon.
- 63. Icterus Mexicanus. Leach Zool. Misc. tab. ii. ex. syn. Table land. Temiscaltipec.
- 64. Icterus cucullatus.

Golden yellow; middle of the back, front, throat, wings and tail black; wing covers with white bands. Table land. Temiscaltipec.

Total length, 8: bill, $\frac{9}{10}$; wings, $3\frac{1}{4}$; tail, $3\frac{1}{2}$; tarsi, $\frac{3}{4}$.

65. Scaphidurus palustris.

Glossy blue black; thighs brown; bill slender, commissure straight; legs slender, claws long, slightly curved.

Inhabits the marshes and borders of the lakes round Mexico,

in flocks.

Total length, 15 inches: bill, $1\frac{2}{7}$; wings, $6\frac{1}{2}$; tail, $7\frac{1}{2}$; tarsi, $1\frac{3}{4}$. M. Vieillot's name for this group, Quiscalus, being already used in botany, I propose to call it Scaphidurus, as expressive of the singular boat-shaped tail common to most, if not all, of the species.

FAM. CORVIDÆ.

66. Garrulus sordidus.

Blue, beneath grayish white; tail rounded. Table land. Real del Monte. Total length, 11 inches: bill, $1_{\frac{1}{4}}$; wings, $6_{\frac{1}{2}}$; tail, $6_{\frac{1}{2}}$; tarsi, $1_{\frac{1}{2}}$.

67. Garrulus coronatus.

Crested; blue, sides of the head blackish; chin, front, and eye-brows whitish; wing covers and tertials banded with black lines; tail rounded.

This elegant bird, remarkable for its full and lengthened crest,

occurs in various parts of the Table land.

Total length, 11: bill, $1_{\frac{1}{4}}$; wings, $5_{\frac{1}{2}}$; tail, $5_{\frac{3}{4}}$; tarsi, $1_{\frac{1}{2}}$.

68. Pica formosa.

Cinereous gray, beneath white; crown and pectoral band black; head with a long crest of black recurved feathers. Table land. Temiscaltipec.

Total length, $19\frac{1}{2}$: bill, $1\frac{1}{2}$; crest, 3; wings, 7; tail, 12;

shortest feather, 6; tarsi, 5.

FAM. LOXIADÆ.

G. Spermagra. Swains. in Zool. Journ. No. 10.

69. Spermagra crythrocephala.

Sub-crested; olive green, beneath yellow; head, ears, and

chin, red.

To this curious bird, Mr. William Bullock has attached the following note. "Found round Temiscaltipec. Feeds on insects, but is fond of beef, &c. Two were shot on the

meat at the back of my house."

The forms among the Tanagers are already so numerous, that I am not willing to increase their definitions, or rather add to the number of their genera, without due precaution. But for this, the bird before me presents such a combination of characters, that it might fairly claim a distinct station. The rounded form of the wings and tail, with the strength and thickness of the bill, associates it with Spermagra; but the peculiar form of the last organ brings it close to the confines of Pyranga, notwithstanding that the comissure,

438 Mr. Swainson's Synopsis of the Birds of Mexico.

missure, although curved, is without any appearance of a tooth.

Total length, 6: bill, $\frac{1}{2}$; wings, 3; tail, $3\frac{1}{4}$; tarsi, $\frac{7}{10}$.

70. Pyranga livida.

Livid red, beneath brighter; bill sinuated at the base; tail divaricated, the sides rounded.

Table land. Real del Monte.

Total length, 8: bill, $\frac{9}{10}$; wings, $3\frac{9}{10}$; tail, $3\frac{1}{2}$; tarsi, $\frac{3}{4}$.

71. Pyranga hepatica.

Grayish livid, beneath bright red; bill toothed in the middle; tail even.

Table land. Real del Monte. The female is olive green above, and yellow beneath.

Total length, 8: bill, $\frac{3}{4}$; wings, 4; tail, $3\frac{1}{2}$; tarsi, $\frac{3}{4}$.

72. Pyranga bidentata.

Head, neck, and under parts golden; back, rump and tail covers fulvous brown, striped with black; wings black, the covers varied with fulvous and white.

Temiscaltipec: rare.

Total length about 8: bill, $\frac{3}{4}$; wings, $3\frac{1}{2}$; bill with two small teeth near the base.

G. Tiaris. Swains. in Zool. Journ. No. 10.

73. Tiaris pusillus.

Olive; crown, ears, throat and breast blackish; eye-stripe and chin golden yellow.

Table land. Temiscaltipec. Real del Monte.

A variety, or probably a young bird of this species now before me, differs in having the black confined to a narrow margin bordering the yellow spots.

G. GUIRACA. Swains. in Zool. Journ. No. 10.

74. Guiraca carulea. Wilson iii. pl. 24. Il pola

Although rarely seen in the United States, this bird is very common on the Table land of Mexico.

75. Guiraca melanocephala.

Head black, throat, breast, and rump ferruginous. Middle of the body, and under wing covers yellow.

Table land. Temiscaltipec. Size of the last.

76. Guiraca ludoviciana. Sw. Vieil. Gal. pl. 58.

Table land. I have seen two or three specimens from Mexico, but all in immature plumage.

FAM. PSITTACIDÆ.

77. Psittacus leucorhynchus. Sw.

Green; crown, chin, and naked orbits white; head bluish; tail short, the lateral feathers red, margined with blue.

A pair of these birds, male and female, were brought to this country

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country alive by Mr. Bullock, who purchased them in the city of Mexico.

Size of Ps. menstruus. Linn.

78. Macrocercus militaris. Edwards, pl. 313.

Table land. Temiscaltipec.

The minute description of Edwards enables me to state some few variations which present themselves in the Mexican specimen. The size is somewhat larger, being 28 inches: the two middle tail feathers alone are red, the others being blue, margined with dull red about half their length: the outer one being entirely blue.

Total length 28 inches: wings, 14; tail, 17; outer feather, 61/2.

Depth of both mandibles, $2\frac{1}{2}$.

79. Macrocercus pachyrhynchus.

Green; front, eye-brows, and ridge of the shoulders red; cheeks plumed; tail feathers broad and obtuse.

Table land: rare.

This bird has strong claims to generic distinction; but I place it, for the present, on the confines of the true Mackaws.

Wings, 10 inches: middle tail feathers, 5\frac{1}{3}; curve of the upper mandible, 2 inches; depth of the under, 1 inch.

FAM. PICIDÆ.

80. Picus formicivorus.

Glossy blue-black; hind head red; front, rump, and band on the quills white; throat yellow; breast black with white

stripes

Table land: not uncommon in the pine woods of Temiscaltipec. Information derived from Mr. Jenkens, a medical gentleman now at Real del Monte, enables me to give this species a name appropriate to its habits.

Total length, 8: bill, $1_{\frac{1}{10}}$; wings, $5_{\frac{3}{4}}$; tail, $3_{\frac{1}{2}}$.

81. Picus elegans.

Equally banded with black and white; beneath gray; eyebrows black, crown red, hind head golden.

Maritime land.

Total length, $8\frac{1}{2}$: bill, $1\frac{1}{2}$; wings, 5; tail, $3\frac{7}{4}$.

82. Picus albifrons.

Above blackish, transversely marked with white lines, beneath olivaceous; front, chin, and sides of the head white; crown and neck red.

Table land: rare.

Total length, $10\frac{1}{2}$: bill, 1_{7}^{6} ; wings, 5; tail, 4.

83. *Picus varius*. Wilson, Am. Orn. i. pl. 9. f. 2. Bonap. Am. Orn. i. pl. 8. f. 1, 2.

Table land. Temiscaltipee. Real del Monte. Total length, 7: bill, 1 %, ; wings, 43; tail, 34.

G. COLAPTES.

Mr. Swainson's Synopsis of the Birds of Mexico. 440

G. Colaptes. Swains. in Zool. Journ. No. 10.

84. Colaptes Mexicanus.

Vinaceous gray; banded above, and spotted beneath with black; throat cinereous; shaft of the guill and tail feathers bright red.

Table land. Temiscaltipec. Real del Monte. The male has a red stripe on each side the head.

Total length, $11\frac{1}{2}$: bill, $1\frac{1}{2}$; wings, $6\frac{1}{4}$; tail, $4\frac{1}{2}$.

G. XIPHORHYNCHUS. Swains. in Zool. Journ. No. 10.

85. Xiphorhynchus leucogaster.

Chin and fore part of the throat white, immaculate; feathers of the head, neck, and breast whitish, margined with black; bill one inch and a half long, slender, pale, the upper mandible brown.

Table land. Temiscaltipec.

Total length, $8\frac{3}{4}$: bill, $1\frac{1}{2}$; wings, $4\frac{8}{10}$; tail, $4\frac{1}{2}$.

86. Xiphorhynchus flavigaster.

Chin fulvous white, immaculate; head, neck, and back striped with fulvous; bill long, strong, brown, slightly curved.

Table land. Temiscaltipec.

Total length, $9\frac{1}{4}$: bill, $1\frac{9}{10}$; wings, $4\frac{1}{10}$; tail, $4\frac{1}{4}$.

G. Oxyglossus. Swains. in Zool. Journ. No. 10.

87. Oxyglossus maculatus. Sw. Wilson iii. pl. 19. f. 3. Maritime lands, near Vera Cruz.

88. Sitta carolinensis.

Table land. Real del Monte.

FAM. CUCULIDÆ.

89. Cuculus Mexicanus.

Rufous beneath cinereous; throat and breast cinnamon; tail long cuneated, beneath rufous.

Table land. Temiscaltipec.

Closely resembles C. cayenensis, L., but the tail beneath is rufous, not black; the ferruginous colour of the head and neck is likewise much brighter.

Bill, $1\frac{1}{2}$; wings, 6; tail, $13\frac{1}{2}$; outer feather, $6\frac{1}{2}$.

90. Crotophaga sulcirostris.

Black, glossed with green and violet; bill carinated, the sides marked by transverse grooves.

Table land. Temiscaltipec. Size of the Lesser Ani.

91. Trogon Mexicanus.

(Female). Ferruginous-brown; breast and body beneath red; middle tail feathers ferruginous, the rest black, the three outer pair tipt and banded on their exterior shafts with white,

Temisealtipec.

FAM.

FAM. TROCHILIDÆ.

G. TROCHILUS Auctorum.

92. Trochilus fulgens.

Green, beneath blackish, front and crown sapphire blue, upper part of the throat and ears emerald green; tail even.

Table land. Temiscaltipec.

Total length, $5\frac{1}{4}$: bill, $1\frac{1}{4}$; wings, $2\frac{3}{4}$; tail, $1\frac{3}{4}$.

93. Trochilus thalassinus.

Green, spot behind the ears sapphire blue; chin bluish; tail even, shining sea-green, with a broad chalybeate band. Table land? Temiscaltipec.

94. Trochilus melanotus.

Golden green; front and chin sapphire blue; throat emerald green; ears black margined above with white; bill red; tail even.

Table land. Temiscaltipec. Real del Monte. Total length, 4: bill, $\frac{7}{7\sigma}$; wings, $2\frac{1}{7\sigma}$; tail, $1\frac{1}{7\sigma}$.

95. Trochilus platycercus.

Green, beneath whitish; chin and throat amethystine red; tail rounded, the four middle feathers very broad; the tips obtusely pointed.

G. CYNANTHUS. Swains. in Zool. Journ. No. 10.

96. Cynanthus latirostris.

Green, beneath bluish; chin and throat sapphire blue; tail
moderate, slightly forked, bluish black; base of the bill
depressed, red.

Table land?

Total length, $3\frac{1}{2}$: bill, 1; wings, $2\frac{2}{170}$; tail (outer feathers)

as, or it is

97. Cynanthus bifurcatus.

Golden green, beneath white, head brownish; tail rather lengthened, black, doubly forked; the six middle feathers with green tips, the two outer white with a black base; bill slightly curved.

Table land?

Bill slightly curved, base broad. This is an aberrant species, touching the genus *Phæthornis*, Sw., or that group of which *Troch. superciliosus* of Authors forms the type.

Total length, $4\frac{4}{10}$: bill, $\frac{7}{10}$; wings, $2\frac{3}{10}$; longest tail feather, $1\frac{7}{10}$.

98. Cynanthus minimus.

Brown, glossed with green, beneath whitish; tail short, forked, narrow and black; bill very straight.

Table land.

Total length, $2\frac{1}{2}$: bill, $\frac{4}{10}$; wings, $1\frac{1}{2}$; tail, $\frac{3}{4}$.

New Series. Vol. 1. No. 6. June 1827. 3 L 99. Cy-

99. Cynanthus Lucifer.

Golden green; throat amethystine; the feathers elongated and narrow; tail short, the feathers pointed; bill curved. Table land. Temiscaltipec.

This is an aberrant species; allied, by its curved bill, to Cy. bifurcatus.

G. LAMPORNIS. Swains, in Zool. Journ. No. 10.

100. Lampornis amethystinus. Sw.

Green; chin and upper part of the throat amethystine; ears black, margined above with white; tail black. Female? Table land. Temiscaltipec. Real del Monte. Total length, 5: bill, 1; wings, $2\frac{7}{10}$; tail, $1\frac{1}{2}$.

101. Momotus Mexicanus.

Head and neck cinnamoneous; back and wings green; ear feathers lengthened, black tipt with blue; beneath the eye a cærulean spot; under plumage greenish white.

Temiscaltipec.

Much smaller than the Brazilian species: on the throat are two small tufts of black feathers, longer than the others; a character which is not, however, peculiar to this species.

LXXXVI. On some Passages in Mr. Ivory's Remarks on a Memoir by M. Poisson relating to the Attraction of Spheroids. By G. B. AIRY, Esq. A.M., Lucasian Professor of Mathematics in the University of Cambridge.

To the Editors of the Philosophical Magazine and Annals. Gentlemen,

IN a paper printed in the last Number of the Philosophical Magazine and Annals, Mr. Ivory has coupled my name with terms which have never before appeared in the pages of your Magazine, or (I will venture to say) in those of any other scientific Journal. After such an attack, I am entitled to ask that you will insert in your next Number my answer to the accusation which Mr. Ivory has brought against me in so un-

disguised a manner.

When I read this article, I was grieved to think that I had been the cause (I think I need not say the unintentional cause) of irritating Mr. Ivory's feelings to such a degree, as to occasion the use of the opprobrious epithets alluded to. Though conscious that I had used no language, except that of courtesy towards Mr. Ivory, I referred immediately to the note to my paper in the Philosophical Transactions, of which he complains so bitterly. In it I found nothing which could justify the torrent of spleen that Mr. Ivory has vented against me. And I profess that I have said nothing in that note